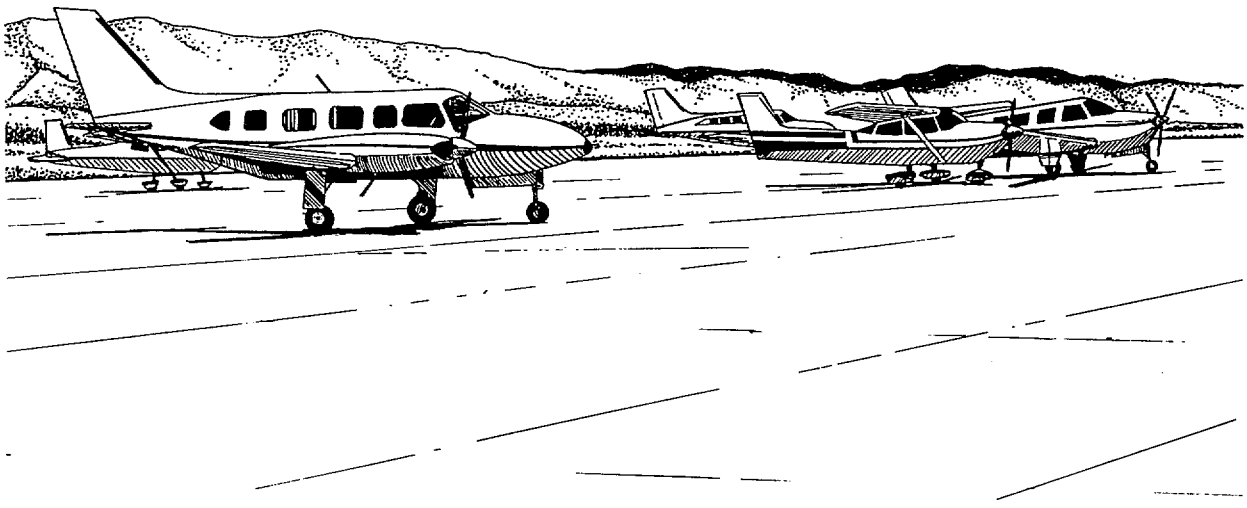
Chapter One
INVENTORY



Chapter One
INVENTORY

The development of a Master Plan for Cottonwood Municipal Airport required the collection and evaluation of various data related to the airport, the community, and the surrounding area. This information included the following.

- Physical inventories and descriptions of facilities available and services provided at the airport.
- Background information pertaining to the airport, the City of Cottonwood and the Verde Valley Region.
- Population and other socioeconomic statistics which might provide an indication of future development in the Verde Valley Region.
- A comprehensive review of the existing local and regional plans and studies to determine their potential influence on the development and implementation of the Airport Master Plan.

An accurate and complete inventory is essential to the success of a master plan study. The conclusions, findings and recommendations made in the master plan are heavily dependent on the information collected during the study. Therefore, the information collected concerning conditions on and around the airport must be as reliable and up to date as possible.

The necessary information was obtained through on-site investigations of the airport and interviews with airport management, representatives from the City of Cottonwood, and Yavapai County. Information was also obtained from historical records and available documents and studies concerning the local communities and the airport. Data on the entire Verde Valley Region was collected and examined including local general plans

and zoning codes, economic development interests and demographics.

AIRPORT SETTING

Cottonwood Municipal Airport is located near the geographic center of Arizona in the Verde Valley Region, approximately 100 miles north of Phoenix and 48 miles south of Flagstaff. The City of Cottonwood is easily accessible from either Phoenix or Flagstaff via Interstate 17 and State Highway 260. The Cottonwood Municipal Airport is located about two miles west of State Highway 260 on State Route 89A. **Exhibit 1A** illustrates the location of Cottonwood Municipal Airport in its regional setting.

AIRPORT DEVELOPMENT HISTORY

Cottonwood Municipal Airport was formerly known as the Cottonwood/Clemeneau Airport. It was established in the early 1940's and was developed as a military training field for navel cadets during World War II. During this time the airport had a dirt runway that was 3,600 feet in length, a storage and maintenance hangar, and a series of offices.

The airport property was acquired by Yavapai County upon the termination of military training use. In 1962, federal, state, and local monies were used to construct a 3,600 foot paved runway.

The City of Cottonwood incorporated in 1960 and ownership of the airport property was transferred from Yavapai County to the City in 1968. Cottonwood was originally incorporated as a Town and became a City in 1987. The City has operated the airport since 1968, either through Town/City management or through an airport operators lease agreement.

In 1976, the City of Cottonwood applied for federal and state grant monies to construct a paved taxiway and aircraft tiedown apron. Also installed during the 1976 project were Low Intensity Runway Lights (LIRL), funded by the Arizona Department of Transportation and the City of Cottonwood.

The City of Cottonwood also funded a portion of the 600 foot runway extension constructed in 1980. In 1984, the installation of Medium Intensity Runway Lights (MIRL) and a security fence was completed using state and local monies. In the late 1980's, the parallel taxiway and access road were constructed and apron lights were installed.

In 1990, a slurry seal was applied to the runway, and in 1991 a slurry seal was applied to the taxiway and apron. Both projects were funded utilizing state and local monies.

EXISTING AIRPORT FACILITIES

This section provides a description and an illustration of airport facilities at Cottonwood Municipal Airport. Airport facilities are classified as either *airside* or *landside*. Each classification will be described as it pertains to Cottonwood Municipal Airport. **Exhibit 1B** illustrates the layout of the existing airport facilities.

AIRSIDE FACILITIES

Airside facilities are those that are directly associated with aircraft operating to and from the airport. Runways, taxiways,

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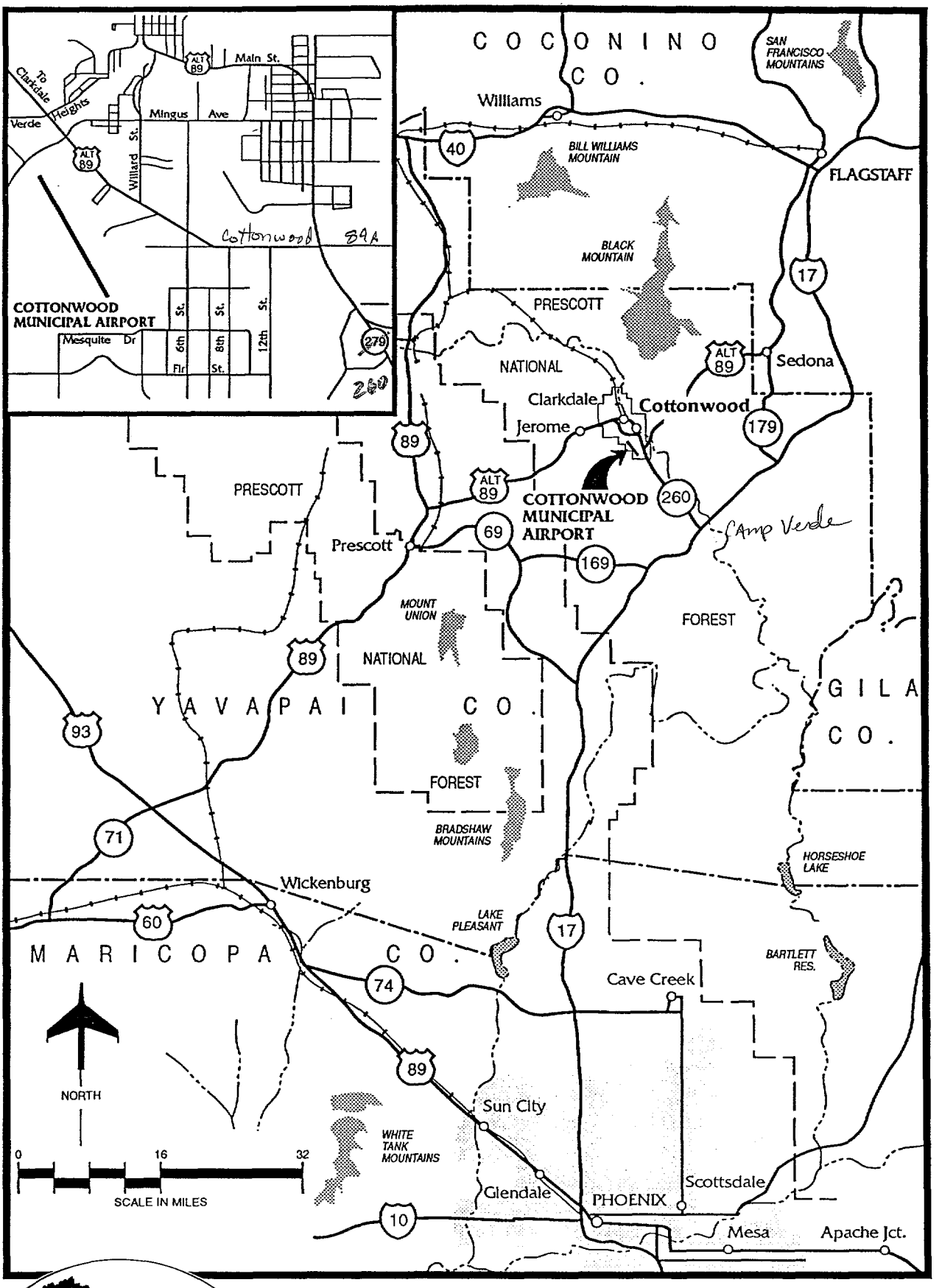


Cottonwood ARIZONA

Exhibit 1A
VICINITY MAP

navigational aids, and airport lighting are examples of airside facilities. The airside facilities are described in the following paragraphs.

Runway

Cottonwood Municipal Airport has a single asphalt runway, oriented north-northwest to south-southeast, and designated as Runway 14-32. It is 4,250 feet in length, 75 feet in width, and has a 300 foot overrun on the north end and a 300 foot overrun on the south end. The runway is situated at an elevation of 3,550 feet mean sea level (MSL). According to the **1991 FAA Form 5010**, the runway has a pavement strength of 4,000 pounds single wheel loading (SWL), however, pavement strength analysis performed in 1992 indicated the runway has a pavement strength of 30,000 pounds SWL. The pavement surface is in good condition having received an asphalt rubber overlay in 1990.

Taxiways

Taxiways are provided to facilitate aircraft movement between the runways and the terminal area. There are five taxiways existing at Cottonwood Municipal Airport. The partial parallel taxiway, designated Taxiway A, has a length of 3,580 feet and a width of 40 feet. Taxiway A extends from the approach end of Runway 32 to the apron area. There are four taxiway stubs, two that connect the runway to the parallel taxiway, Taxiways D and E, and two that connect the runway to the apron, Taxiways B and C. All taxiways are in good condition, having received a seal coat in 1991.

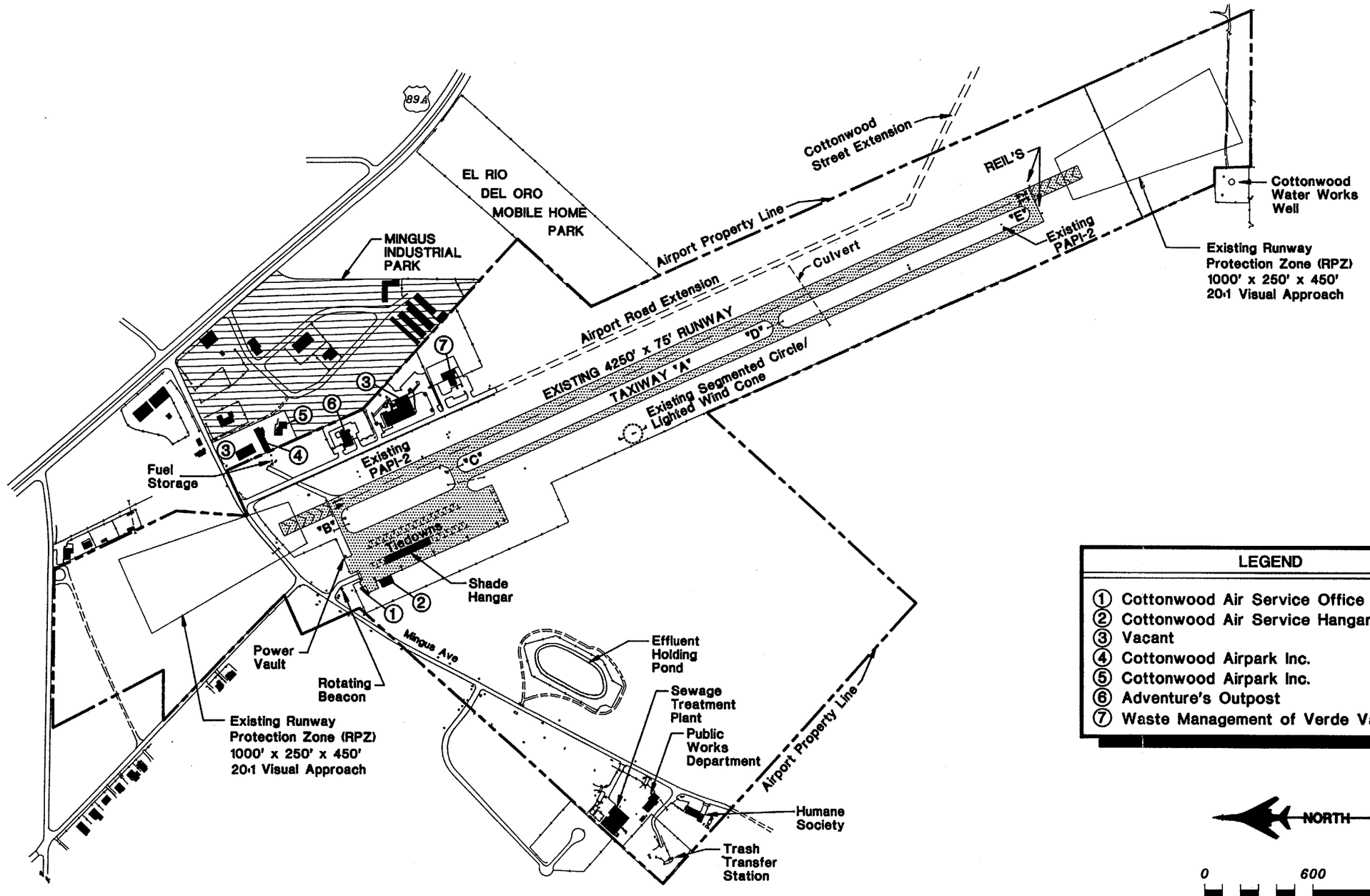
Navigational Aids

Navigational aids (navaids) provide direction, range and position information to pilots. Navaids are usually classified as either enroute or terminal navaids. The enroute navaids provide point-to-point navigation while terminal navaids provide approach and landing guidance. Some navaids can be used in both enroute and terminal roles.

There are no navaids located at or near the Cottonwood Municipal Airport. The primary navaids within the region are the Flagstaff Very High Frequency Omnidirectional Range (VOR) and the Drake VOR. The Flagstaff VOR is located at the Flagstaff-Pulliam Airport, 35 nautical miles (NM) northeast. The Drake VOR, located 4 NM northwest of Prescott-Ernest A. Love Field, is 20 NM to the west-southwest of Cottonwood Municipal Airport. These navaids are used in the regional enroute system and in terminal roles at these airports. Sedona Airport, 14 NM northeast of Cottonwood Municipal Airport, has a nondirectional beacon (NDB) facility which is located 1.7 NM southwest of the Sedona Airport. This NDB is used in a terminal role for approach and landing guidance to the Sedona Airport.

Lighting

A variety of lighting aids are available at Cottonwood Municipal Airport to facilitate airport identification, approach, and landing in adverse weather conditions. These systems are categorized by function and are further described below.



LEGEND
① Cottonwood Air Service Office (FBO)
② Cottonwood Air Service Hangar (FBO)
③ Vacant
④ Cottonwood Airpark Inc.
⑤ Cottonwood Airpark Inc.
⑥ Adventure's Outpost
⑦ Waste Management of Verde Valley

NORTH

0 600 1200

SCALE IN FEET

Cottonwood
ARIZONA

Exhibit 1B
EXISTING FACILITIES

Identification Lighting: The location and presence of an airport at night is universally indicated by an airport beacon. At Cottonwood Municipal Airport the airport beacon is located just north of the FBO office on the west side of the runway. This rotating beacon is 36 inches in diameter and is equipped with an optical system that projects two rotating beams of light, one green and one white.

A lighted wind cone is combined with a segmented circle near midfield on the west side of the runway. The wind cone and the segment circle provide the pilot with a visual indication of the wind speed and direction, as well as the basic information concerning the airport traffic patterns.

Runway and Taxiway Lighting: Runway 14-32 is equipped with Medium Intensity Runway Lights (MIRL) which outline the runway with white lights. Each end of the runway is equipped with threshold lights as part of the MIRL system. The MIRL were installed in 1984 utilizing federal, state, and local funds. The taxiway system is not equipped with any lighting.

Approach Lighting: Precision Approach Path Indicators (PAPI) are a system of lights located near a runway end which provide visual decent guidance information during an approach to the runway. The approach ends of Runway 14-32 are equipped with single box PAPI systems.

Runway End Identifier Lights (REIL) are high intensity strobe lights that provide the pilot with a positive identification of the runway threshold. These lights are particularly useful during periods of low visibility or at night. A REIL system is installed at the approach end of Runway 32, but is currently inoperable.

LANDSIDE FACILITIES

In addition to the airside facilities just described, general aviation landside facilities are essential to the daily operation of Cottonwood Municipal Airport. Landside facilities primarily consist of those facilities required to accommodate aircraft, or pilots and passengers while they are on the airport. Landside facilities typically consist of terminal buildings, hangars, aircraft parking aprons, fuel storage facilities and automobile parking. Landside facilities at Cottonwood Municipal Airport are located on the west side of Runway 14-32. The various elements comprising the landside facilities are described below.

Terminal Building

The Cottonwood Municipal Airport currently does not have a terminal building facility. The office of the airport's Fixed Based Operator (FBO), Cottonwood Air Service, is currently functioning as a terminal building. The operation of the UNICOM frequency and the pilot flight planning facilities are located within this office.

Apron And Aircraft Parking Area

The apron area is located on the northwest portion of the airport property. The apron is accessed from Taxiway A and from the runway via Taxiways B and C. The apron area consists of asphalt pavement, which recently received a slurry seal in 1991. The apron area contains one conventional hangar, twelve shades, and forty-three tiedowns. The conventional hangar is owned by the Cottonwood Airpark, Inc. and is leased by the FBO for their aircraft maintenance activities. The twelve shades are also owned by Cottonwood Airpark,

Inc. and leased directly to aircraft owners. Monthly tiedown fees generated by the forty-three tiedowns are collected by Cottonwood Air Service.

Fuel Facilities

Fuel storage at the Cottonwood Municipal Airport consists of one 10,000 gallon underground tank owned by the City of Cottonwood. The fuel tank is used by to Cottonwood Air Service for dispensing fuel to aircraft. The underground fuel tank is used to store 100LL octane aviation fuel. The underground tank is located on the northeast corner of the airport property with a taxiway stub from the runway leading to the facility. This taxiway stub is in poor condition and is used only for access to the fuel facility by the fuel truck.

Cottonwood Air Service operates one 900 gallon fuel truck which dispenses fuel directly into the aircraft parked in the apron area. The fuel truck can be split to accommodate both 100LL and Jet A fuels if needed.

Automobile Parking

Automobile parking is provided directly in front of the FBO building and adjacent to the electrical power vault to the east of the airport entrance. A total of nine paved parking spaces are available directly in front of the FBO building next to the electrical power vault, with additional unpaved spaces located east of the power vault.

AIRPORT SUPPORT FACILITIES

Airport support facilities are those that are not classified as airside or landside facilities, but do play an important role in the function of the airport. Airport access and available utilities are two support facilities which will be described in the following paragraphs.

Airport Access and Parking

Access to Cottonwood Municipal Airport is available via State Route 89A to Mingus Avenue to Airport Entrance Road on the north side of the airport. State Route 89A is a four lane road, leading to Mingus Avenue and Airport Entrance Road, which are both two lane paved roads. Airport Entrance Road leads directly onto the apron, just to the east of the FBO office.

Utilities

The availability and capacity of utilities serving the airport are important factors in determining the development potential of the airport property. Of primary concern in the inventory investigation is the availability of water, sanitary sewer, gas, electricity, and telephone. Some, if not all, of these utilities will be necessary for any future development. Cottonwood Municipal Airport is served by both municipal and public utilities, listed as follows.

- Cottonwood Water Works, Inc. provides the water service to the Cottonwood Municipal Airport.

- Sanitary sewage treatment and disposal is provided by the City of Cottonwood through the municipal sewage system.
- The area's natural gas is supplied by the Citizens Gas Company.
- Electrical power service is provided to the Cottonwood Municipal Airport by Arizona Public Service Company.
- Telephone service is provided by US West Communications.

AIRSPACE AND AIR TRAFFIC CONTROL

An analysis of the airspace structure in the vicinity of Cottonwood Municipal Airport is necessary to determine the operational interaction among the various types of airspace and airspace users. Flights in and out of the Cottonwood Municipal Airport are conducted using Visual Flight Rules (VFR). VFR conditions exist when flight visibility is three miles or greater and the cloud ceiling is at least 1,000 feet above the surface. Cottonwood Municipal Airport does not have an air traffic control tower, therefore, no formal terminal traffic control services are available. However, air traffic advisories and weather information services are provided by the FBO staff on the UNICOM frequency. The UNICOM frequency is also monitored by the Flight Service Station located in Prescott. Enroute air traffic control services are provided by the FAA through the Albuquerque Air Route Traffic Control Center.

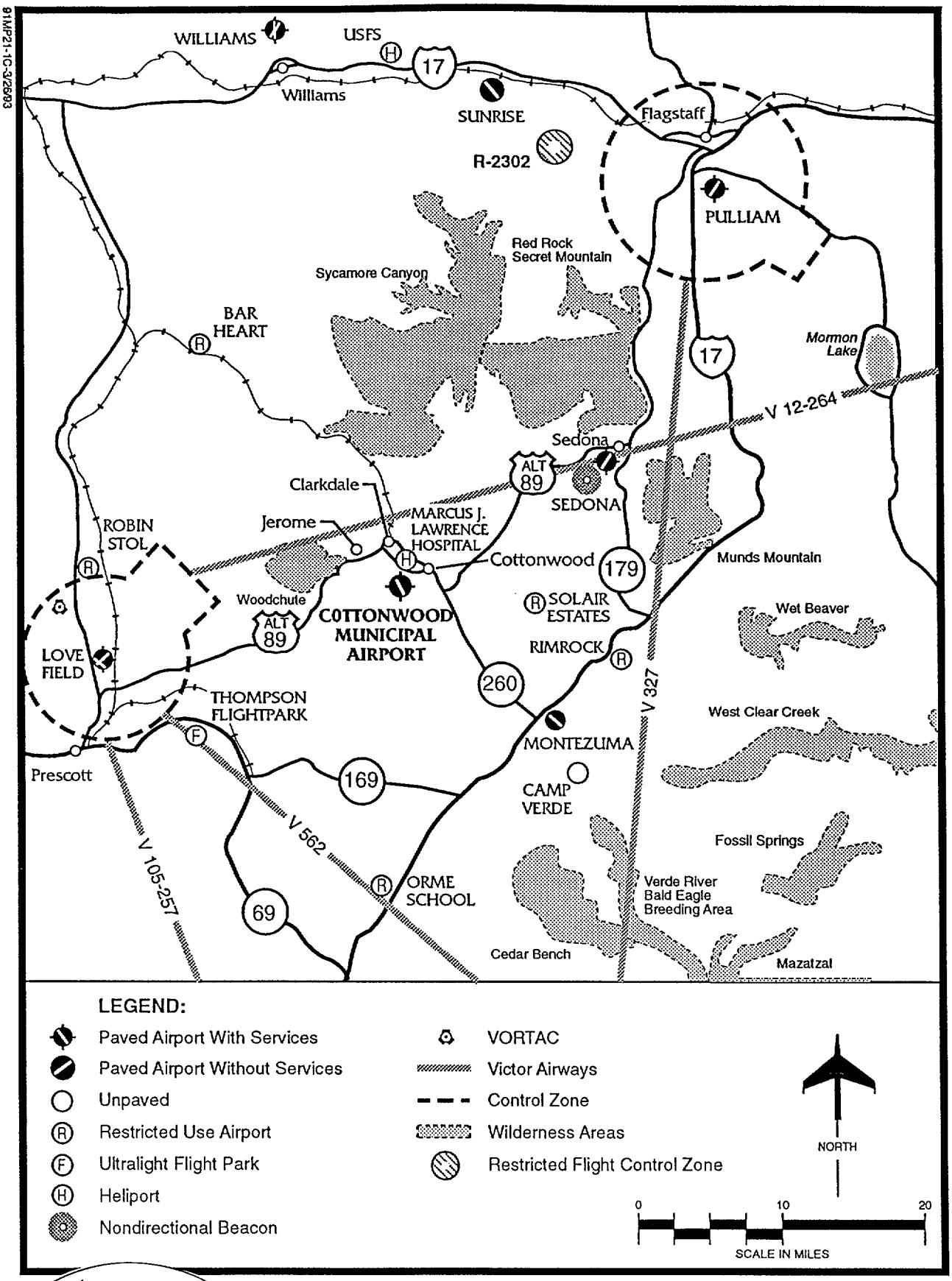
As depicted in **Exhibit 1C**, Cottonwood Municipal Airport is located in an area of private and public airports. The airspace and airports that are associated with the Cottonwood Municipal Airport area are discussed in the paragraphs that follow.

AIRPORTS AND HELIPORTS

There are three public and six private airports and one heliport within a 20 nautical mile (NM) range of Cottonwood Municipal Airport. Sedona Airport, the closest airport providing scheduled airline service, is located approximately 14 NM northeast of Cottonwood Municipal Airport. The three public airports in the area are Prescott Ernest A. Love Field, 20 NM west, Sedona Airport, 14 NM northeast, and Camp Verde Airport, 12 NM southeast. Prescott and Sedona airports provide paved runway surfaces, while Camp Verde and the six private airports have unpaved surfaces. The one heliport in the area is located at the Marcus J. Lawrence Hospital, approximately 1/2 NM to the northeast of the airport.

AIRWAYS

Aircraft normally travel between airports on airways. These airways are marked on aeronautical charts with enroute navigational aids that assist pilots in controlling their aircraft along these routes. There are two airway systems: the **Airway System** (Victor Airways), and the **Jet Airways System.** The Airway System, which begins at 3,000 feet Above Ground Level (AGL) and extends upward to 18,000 feet Mean Sea Level (MSL). The Jet Airway System, layered above the Victor Airway System, begins at 18,000 feet MSL and extends upward to 45,000 feet MSL. The only airway system which influences the Cottonwood area is the Victor Airway System. Victor Airway V12-264, an east-west airway, crosses the Cottonwood area approximately four miles north of the



Cottonwood
ARIZONA

Exhibit 1C
AIRSPACE

airport. This airway is used to navigate between the Drake VOR and the Winslow VOR.

WILDERNESS AREAS

The Cottonwood Municipal Airport is located in the vicinity of several Wilderness Areas. Wilderness areas within 20 NM of the airport include Sycamore Canyon Wilderness Area and Red Rock Secret Mountain Wilderness Area to the north, Munds Mountain Wilderness Area to the northeast, Wet Beaver Wilderness Area to the east, West Clear Creek Wilderness Area to the southeast, Cedar Bench Wilderness Area to the south, and Woodchute Wilderness Area to the west. The takeoff and landing of aircraft in wilderness areas are prohibited and aircraft are requested to maintain altitudes of at least 2,000 feet above ground level (AGL) of the highest elevation in the area.

SOCIOECONOMIC CHARACTERISTICS

A variety of historical and forecast socioeconomic information, related to the Cottonwood Service Area and Yavapai County, was collected for use in various elements of the Master Plan. This information is essential in determining aviation service level requirements, as well as forecasting the number of based aircraft and aircraft activity at the airport. The aviation forecast is normally directly related to the population base, economic strength of the region, and the ability of the region to sustain a strong economic base over an extended period of time. These types of data provide valuable insight into the character of the community and how these characteristics will effect aviation demand.

POPULATION

An analysis of population growth in the Cottonwood Service Area was obtained from the Arizona Department of Economic Security and other available data compiled. This information was analyzed for the Cottonwood Service Area, Yavapai County, and the State of Arizona. The Cottonwood Service Area includes several cities or towns: Cottonwood, Cottonwood suburbs, Clarkdale, Cornville, Camp Verde and Jerome. **Table 1A** depicts the historical and projected population trends for these areas.

TABLE 1A
Population Growth - Historical and Projected

Year	Cottonwood Service Area	Yavapai County	State Of Arizona
1960	3,217*	29,100	1,321,000
1970	3,792*	37,600	1,795,000
1980	10,557*	68,145	2,729,450
1990	23,834	101,800	3,714,300
1995	28,065	125,675	4,152,375
2000	31,685	142,625	4,664,125
2005	35,335	160,125	5,270,461
2010	39,329	179,125	5,760,100
2015	43,775	200,150	6,393,711

Source: Bureau of the Census, U.S. Department of Commerce, Arizona Department of Economic Security.

* Does not include Cornville or Cottonwood suburbs.

ECONOMY AND EMPLOYMENT

The Cottonwood area serves as a trading center for the Verde Valley. Employment is generated by a wide variety of retail trade establishments and professional services available in the community. **Table 1B** illustrates the employment structure and labor force data for the Cottonwood area.

TABLE 1B
Employment Structure and Labor Force Data

Economic Sector	Percent of Total
Agriculture & Mining	0.4
Construction	4.2
Manufacturing	1.6
Transportation, Communication and Public Utilities	2.4
Wholesale Trade	4.4
Retail Trade	35.0
Finance, Insurance Real Estate	6.2
Services	30.1
Public Administration	15.7
Total	**100.0%**

Source: Arizona Department of Economic Security

The 104-bed Marcus J. Lawrence Hospital in Cottonwood is one of the finest diagnostic and treatment centers in Northern Arizona. The hospital employs approximately 420 residents from the Cottonwood area. Many residents of the area work at Salt River Pima Indian Community Phoenix Cement Company, located in nearby Clarkdale.

Retired residents have a major impact on the Verde Valley economy with 26 percent of the population over 65. Tourism, attracted by the national forests, state parks, and national monuments surrounding Cottonwood, furnish another significant source of income.

EXISTING LAND USE

Exhibit 1D shows a generalized depiction of the existing land use in the vicinity of Cottonwood Municipal Airport. The exhibit was developed from the Cottonwood General Plan Existing Land Use Map and a field survey conducted in January 1991.

The Cottonwood Municipal Airport is located within the corporate boundaries of the City of Cottonwood, in Yavapai County. To the west of the corporate boundary is the Prescott National Forest. The corporate boundary for the City of Clarkdale is located to the north-northwest of the airport. Land under the jurisdiction of Yavapai County is adjacent to and south of the city boundary. The majority of the development in the City of Cottonwood is located to the east of the airport.

The "residential" category includes high, medium, and low density housing and mobile home developments. The El Rio De Oro Mobile Home Park, located off State Route 89A, is the closest residential development to the airport. This mobile home park is located less than an 1/8 mile east of the airport. Located to the south of the airport is the Verde Village development, consisting of single family homes. To the east of the Verde Village development is Verde Palisades, also consisting of single family homes. Located to the north of the Airport, along the west side of Airport Road, are two small areas of single family homes.

The "commercial/industrial" category includes businesses, offices, and industrial uses. There are two areas in this category that are significant to the Cottonwood Municipal Airport: the Mingus Industrial Park, located to the east of the Airport, and the Cottonwood Airpark, located within the Airport property. A description of each of these areas follows.

The last three categories, public/semi-public, undeveloped/ agriculture, and parks, consist of schools and utilities, vacant lots and farmlands, and public parks, respectively. The majority of the land to the west of the airport is Prescott National Forest.

COTTONWOOD AIRPARK

The City of Cottonwood currently leases the Airport property to Cottonwood Airpark, Inc. Cottonwood Airpark, Inc. is developing and constructing facilities, and subleasing lots to encourage new businesses to locate at the airport. The current tenants of the airpark and the Cottonwood Airpark, Inc. building employ approximately 60 people. The names of the existing tenants are provided below.

- Cottonwood Airpark, Inc.
- Cottonwood Air Service
- Adventure's Outpost
- Waste Management
- Devman Real Estate
- Pizza Station
- Western Communications
- Rich's Carpet
- First Health
- Pemburton Drywall
- Sierra Landscaping
- Parkway Design
- Morgan Appraisers

MINGUS INDUSTRIAL PARK

The Mingus Industrial Park is located between State Route 89A and the east airport property boundary. The Mingus Industrial Park currently supports a variety of industrial and commercial activity which employs approximately 90 people. Names of the existing businesses are provided below.

- Tygar Mini Storage
- Mingus Construction
- Sun Valley Equipment
- Adventure's Outpost
- Bent River Machine
- Foster Medical Supply
- Waterfield Mortgage Company
- R Bar D Ranch
- Sierra Landscaping

CLIMATE

Weather conditions play an important role in the planning and development of an airport. Temperature is an important factor in determining runway length. Wind speed and direction are used in determining optimum runway orientation. The percentage of time that visibility is impaired due to cloud coverage or other conditions is a major factor in determining the need for navigational aids and lighting.

The moderate climate experienced at the Cottonwood Municipal Airport produces a large number of favorable flying days. Based on a thirty year average, the hottest month is July, with an average daily maximum temperature of 98.4 degrees fahrenheit and an average daily minimum of 66.0 degrees fahrenheit. The coolest

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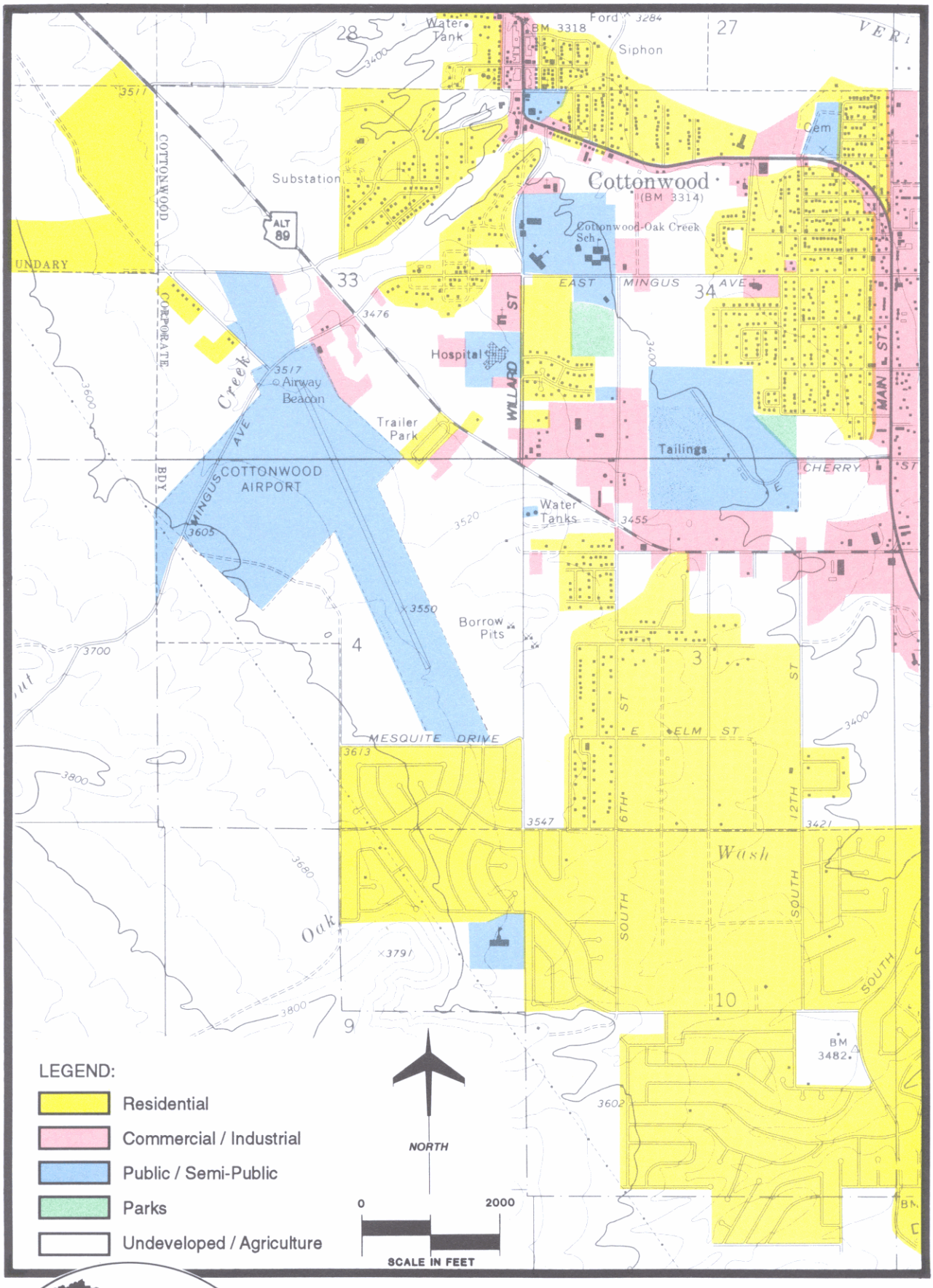


Cottonwood
ARIZONA
Heart of the Verde Valley

Exhibit 1D
EXISTING LAND USE

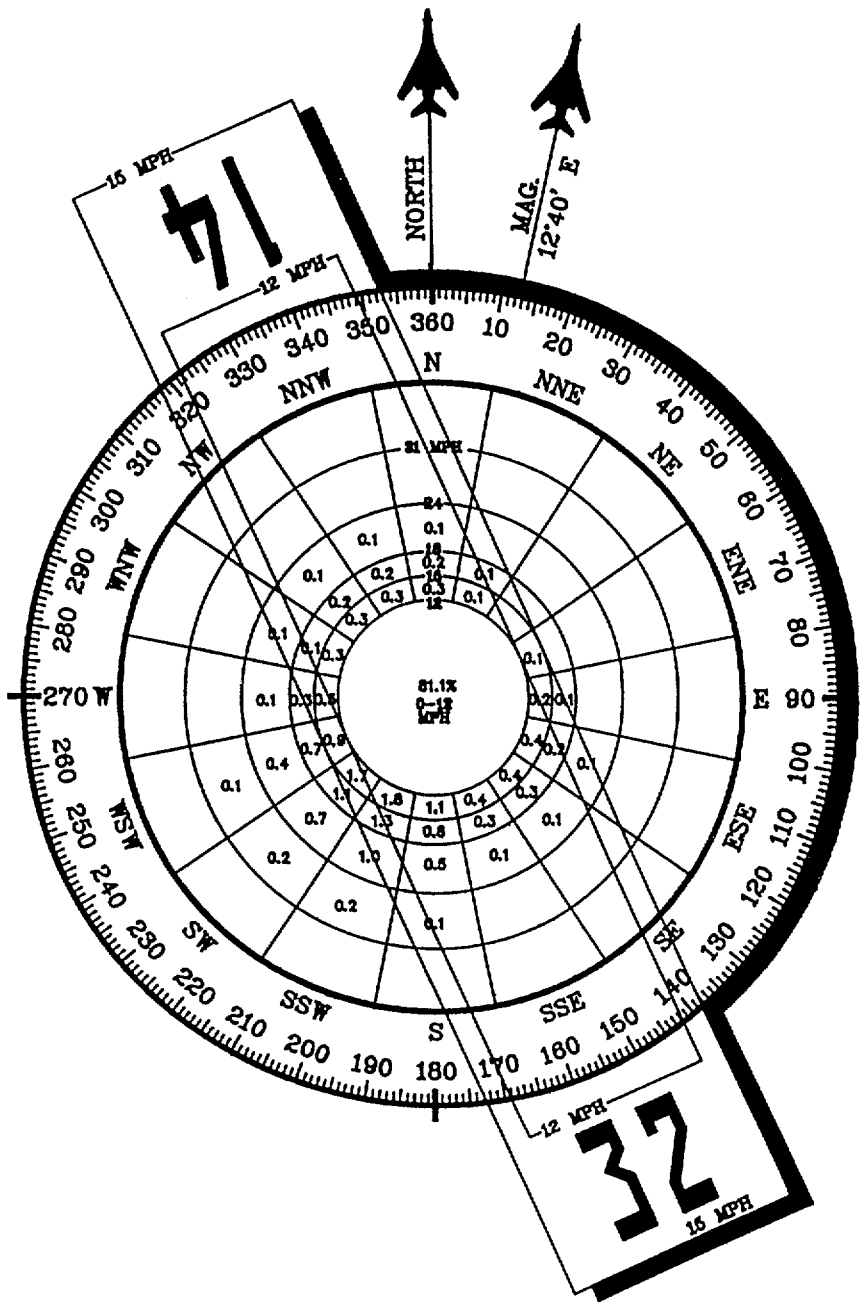
month is January, with an average daily maximum temperature of 58.2 degrees fahrenheit and an average daily minimum of 28.4 degrees fahrenheit. The average annual precipitation is 12.21 inches, with the monsoon season months of July, August, and September producing the greatest measures. **Table 1C** depicts the weather summary for the Cottonwood area. According to users of the Cottonwood Municipal Airport, the prevailing winds are primarily out of the southwest, favoring the use of Runway 14. The windrose illustrated in **Exhibit 1E** was constructed using historical surface wind data recorded at Prescott Ernest A. Love Field, 20 NM to the west, which is the closest weather observation station to Cottonwood Municipal Airport. An analysis of the hourly weather observations during the period, 1948-1978, reveals that Runway 14-32 provides 91.4 percent coverage of the 12 miles per hour (mph) crosswind component and a 95.9 percent coverage of the 15 mph crosswind component. The wind patterns and frontal movements passing over the mountains occasionally disturb the flow of air and it is not uncommon to see wind speeds in excess of 50 mph for short periods of time.

TABLE 1C
Weather Summary
Cottonwood, Arizona

Month	Average Temperature (°F) Daily Maximum	Daily Minimum	Average Total Precipitation (Inches)
January	58.2	28.4	0.85
February	63.2	31.8	0.77
March	68.4	35.5	0.87
April	76.6	42.4	0.57
May	85.1	49.4	0.35
June	94.6	57.7	0.58
July	98.4	66.0	2.02
August	95.4	64.1	2.43
September	91.6	57.5	1.12
October	82.3	46.7	0.80
November	68.6	36.0	0.74
December	59.0	29.0	1.11
YEAR	**78.8**	**45.4**	**12.21**

Average Total Snow, Sleet and Hail Annually: 5.0 inches (Based on a thirty year average).

Source: Arizona Department of Commerce.



SOURCE:
U.S. Department of Commerce,
National Oceanic and
Atmospheric Administration
DATA STATION:
National Climate Center
Ashville, North Carolina
OBSERVATIONS:
90,000 Estimated
1948–1978

WIND COVERAGE		
COTTONWOOD	12 MPH	15 MPH
Runway 14–32	*91.68%*	*96.38%*

Cottonwood
ARIZONA

Exhibit 1E
WINDROSE

SUMMARY

This chapter has examined those factors and issues that will have the greatest effect on the future of Cottonwood Municipal Airport. The research and data collected for this inventory chapter provide the information necessary to perform various analyses required in subsequent chapters of this report. It also provides the proper perspective from which to develop a realistic Master Plan that will meet the needs of both the City of Cottonwood and the entire Verde Valley Region.

The next chapter will examine the current demand for aviation facilities and how these demands can be expected to change in the future. Projections of aviation activity through the year 2015 will be prepared in order to identify the necessary facilities required to meet this demand.